180182

Tucson Electric Power Company

Corporate Environmental Services
3950 East Irvington Road (85714)
Mail Stop DS503, Post Office Box 711
Tucson, Arizona 85702

Telephone (520) 918-8316
Facsimile (520) 918-8250

Certified Mail
7007-1490-0002-5416-1609 ADEQ
7007-1490-0002-5416-1630 EPA

March 31, 2008

Ms. Nancy Wrona, Director
Air Quality Division
Arizona Department of Environmental Quality
1110 W. Washington Street
Phoenix, AZ 85007

RE: Application for a Minor Revision to Air Quality Permit No. 32008
Springerville Generating Station (SGS)

Dear Ms. Wrona:

Tucson Electric Power (TEP) is submitting under R18-2-319, an application for a minor revision to Air Quality Permit No. 32008 currently issued for operation of the SGS facility. The purpose of this minor revision is to address the following changes in its operation:

- Addition of a Unit 4 dust collector at the Unit 3 crusher building
- Minor location changes for various emission sources

This application focuses specifically on the changes described above and how they impact the current air quality permit.

Enclosed please find the minor permit revision application package which contains, among other items, standard permit application forms, description of the changes, regulatory applicability analysis, and emission calculations.

TEP appreciates the Department's assistance in processing this minor permit revision. If you have any questions, please contact me at (520) 918-8316, or Zig Fang at (520) 918-8380.

Sincerely,

Charles W. Komadina, Director
Corporate Environmental Compliance & Permits

Enclosure

cc: EPA Region IX
B. Vaidyanathan (ADEQ)
K. Wanttaja (SRP)
D. Casiraro (SRP)
S. Roberts (SRP)
B. Sprungl (SRP)
A. Hoekstra
S. Devlin
E. Bakken
J. Stevens
A. Pulsifer
Z. Fang

Springerville Generating Station
Minor Permit Revision Application

Submitted to:
Arizona Department of Environmental Quality
1110 West Washington Street
Phoenix, Arizona 85007

Submitted by:
Tucson Electric Power Company
P.O. Box 711
Mail Stop DS503
Tucson, Arizona 85702

March 2008

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Executive Summary

Tucson Electric Power (TEP) currently operates the Springerville Generating Station (SGS) located in Apache County, 15 miles northeast of Springerville, Arizona. The station consists of two 380 megawatt (MW) (net) coal-fired generating units designated as Unit 1 and Unit 2, and two 400 MW (net) coal-fired generating units designated as Unit 3 and Unit 4. SGS supplies electric power for sale to customers primarily in the Tucson area. The generating station produces electricity by combusting fossil fuels (primarily coal) in boilers to produce heat to convert water to steam. The steam powers turbines attached to electric generators, which convert the mechanical energy supplied by the turbines into electric energy. The SGS facility can operate 24 hours per day, 7 days per week, 52 weeks per year.

The TEP SGS is a major stationary source of air emissions operating in accordance with Title 18, Article 2 of the Arizona Administrative Code. With this application, TEP is requesting a Minor Permit Revision to its current Title V air quality permit to address the following changes in its operation:

- Addition of a Unit 4 dust collector at the Unit 3 crusher building; and
- Minor location changes for various emission sources.

This application focuses specifically on the changes described above and how they impact the current air quality permit.

1.0 Permit Application Forms

This section includes:

- Standard Permit Application Form
- Emission Sources Form
- Compliance Certification & Certification of Truth, Accuracy, and Completeness

180182

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY
Air Quality Division
1110 West Washington • Phoenix, AZ 85007 • Phone: (602) 771-2338
STANDARD PERMIT APPLICATION FORM
(As required by A.R.S. § 49-426, and Chapter 2, Article 3, Arizona Administrative Code)

1. Permit to be issued to: (Business license name of organization that is to receive permit) Tucson Electric Power Company

2. Mailing Address: P.O. Box 711, Mail Stop DS503
   City: Tucson State: Arizona ZIP: 85702

3. Previous Company Name: (if applicable) Not Applicable

4. Name (or names) of Owners/Principals: UniSource Energy
   Phone: _____ Fax: _____ Email: _____

5. Name of Owner's Agent: Charles W. Komadina
   Phone: (520) 918-8316 Fax: (520) 918-8250 Email: ckomadina@tep.com

6. Plant/Site Manager/Contact Person and Title: Samuel Devlin, Plant Manager, Springerville Generating Station
   Phone: (928) 337-7398 Fax: (520) 337-7482 Email: sdevlin@tep.com

7. Plant Site Name: Springerville Generating Station (SGS)
   Plant Site Location/Address: 10 mi. north of Springerville, AZ on Hwy. 191; 12 mi. east on site access road
   City: Springerville County: Apache ZIP: 85938
   Indian Reservation (if applicable, which one): Not Applicable
   Latitude/Longitude, Elevation: 34.32N/109.16W; Elevation: 7,000 f t.

8. Equipment Purpose: Electrical Power Generation
   Equipment List/Description: Refer to Process Unit Description and Equipment List provided in this application, the Title V renewal permit application and other permit revision applications associated with this permit.

9. Type of Organization:
   ☒ Corporation ☐ Individual Owner
   ☐ Partnership ☐ Government Entity (Government Facility Code: _____)
   ☐ Other

10. Permit Application Basis: ☐ New Source ☒ Revision ☐ Renewal of Existing Permit
    (Check all that apply.) ☐ Portable Source ☐ General Permit
    For renewal or modification, include existing permit number (and exp. date): Permit No. 32008 (Exp. July 21, 2011)
    Date of Commencement of Construction or Modification: Prior to January 1, 2009
    Is any of the equipment to be leased to another individual or entity? ☐ Yes ☒ No
    Standard Industrial Classification Code: 4911 State Permit Class: I

11. Signature of Responsible Official of Organization: Samuel C. Devlin
    Official Title of Signer: Plant Manager, Springerville Generating Station

12. Typed or Printed Name of Signer: Samuel Devlin
    Date: 3-25-08 Telephone Number: (928) 337-7398
    Company Name: Tucson Electric Power Company

Last Revised: March 25, 2008

EMISSION SOURCES

Estimated "Potential to Emit" per R18-2-101.
Review of applications and issuance of permits will be expedited by supplying all necessary information on this Table.

REGULATED AIR POLLUTANT DATA					EMISSION POINT DISCHARGE PARAMETERS										
EMISSION POINT [1]		CHEMICAL COMPOSITION OF TOTAL STREAM	AIR POLLUTANT EMISSION RATE		UTM COORDINATES OF EMISSION PT. [5]			STACK SOURCES [6]					NON POINT SOURCES [7]	
								HEIGHT ABOVE GROUND	HEIGHT ABOVE STRUC.	EXIT DATA				
NUMBER	NAME	REGULATED AIR POLLUTANT NAME [2]	#/HR [3]	TONS/ YEAR [4]	ZONE	EAST (Mtrs)	NORTH (Mtrs)	(Feet)	(Feet)	DIA. (Feet)	VEL. (Fps)	Temp. (°F)	LENGTH (Feet)	WIDTH (Feet)
8	New Crusher Tower Dust Collector	PM10	0.004	0.003	12	668758	3798993	46	0	2.5	107	Amb		
		PM	0.009	0.006										
U4-A	Stackout Dust Collector	PM10	0.004	0.003	12	668545	3799042	145	0	1.6	73	Amb		
		PM	0.009	0.006										
U4-D	Unit 4 Crusher Dust Collector	PM10	0.002	0.003	12	668611	3799001	120	10	3.2	56.6	Amb		
		PM	0.005	0.006										
U4-J	Unit 4 Active Coal Pile A (reclaimer)	PM10	0.01	0.01	12	668465	3799262	NA	NA	NA	NA	NA		
		PM	0.02	0.03										
U4-K	Unit 4 Active Coal Pile A (radial stacker)	PM10	0.17	0.12	12	668465	3799262	NA	NA	NA	NA	NA		
		PM	0.36	0.25										
U4-L	Unit 4 Dust Collector @ Unit 3 Crusher Bldg	PM10	0.004	0.003	12	668809	3799005	139	10	2.2	57.9	Amb		
		PM	0.009	0.006										

GROUND ELEVATION OF FACILITY ABOVE MEAN SEA LEVEL: 6980 FEET
ADEQ STANDARD CONDITIONS ARE 293K AND 101.3 KILOPASCALS (A.A.C. R18-2-101)

General Instructions:

1. Identify each emission point with a unique number for this plant site, consistent with emission point identification used on plot plan, previous permits, and Emissions Inventory Questionnaire. Include fugitive emissions. Limit emission point number to eight (8) character spaces. For each emission point use as many lines as necessary to list regulated air pollutant data. Typical emission point names are: heater, vent, boiler, tank, reactor, separator, baghouse, fugitive, etc. Abbreviations are O.K.
2. Components to be listed include regulated air pollutants as defined in R18-2-101. Examples of typical components names are: Carbon Monoxide (CO), Nitrogen Oxides (NO_X), Sulfur Dioxide (SO_2), Volatile Organic Compounds (VOC), Particulate matter (PM), particulate less than 10 microns (PM_{10}), etc. Abbreviations are O.K.
3. Pounds per hour (#/HR) is maximum potential emission rate expected by applicant.
4. Tons per year is annual maximum potential emission expected by applicant, which takes into account process operating schedule.
5. As a minimum applicant shall furnish a facility plot plan as described in the filing instructions. UTM coordinates are required only if the source is a major source or is required to perform refined modeling for the purposes of demonstrating compliance with ambient air quality guidelines.
6. Supply additional information as follows if appropriate:
   a. Stack exit configuration other than a round vertical stack. Show length and width for a rectangular stack. Indicate if horizontal discharge with a note.
   b. Stack's height above supporting or adjacent structures if structure is within 3 "stack height above the ground" of stack.
7. Dimensions of non point sources as defined in R18-2-101.

Certification of Compliance with all Applicable Requirements:

This certification must be signed by a Responsible Official. Applications without a signed certification will be deemed incomplete.

The responsible official is defined as a person who is in charge of principal business functions or who performs policy or decision making functions for the business. This may also include an authorized representative for such persons. For a complete definition see the Arizona Administrative Code, Title 18, Chapter 2, Section R18-2-301.

I certify that I have knowledge of the facts herein set forth, that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by the Arizona Department of Environmental Quality as public record. I also attest that I am in compliance with the applicable requirements of the General Permit and will continue to comply with such requirements and any future requirements that become effective during the life of the General Permit. I will present a certification of compliance to ADEQ no less than semiannually and more frequently if specified by ADEQ. I further state that I will assume responsibility for the construction, modification, or operation of the source in accordance with Arizona Administrative Code, Title 18, Chapter 2 and any permit issued thereof.

Typed or Printed Company Name: Tucson Electric Power Company

Official Title of Signer: Plant Manager, Springerville Generating Station

Typed or Printer Name of Signer: Samuel Devlin

Signature of Responsible Official: Samuel E. Devlin Date: 3-25-08

Certification of Truth, Accuracy, and Completeness
Arizona Administrative Code R18-2-304.H.

R18-2-304.H. Certification of Truth, Accuracy, and Completeness. Any application form, report, or compliance certification submitted pursuant to this Chapter shall contain certification by a responsible official of truth, accuracy, and completeness. This certification and any other certification required under this Article shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate and complete.

By my signature, I, Samuel Devlin, hereby certify that based on information and belief formed after reasonable inquiry, the statements and information in this document are true, accurate, and complete.

Official Title of Signer: Plant Manager, Springerville Generating Station

Typed or Printer Name of Signer: Samuel Devlin

Signature of Responsible Official: Samuel E. Devlin Date: 3-25-08

2.0 Description of the Change

There are two changes associated with this permit revision. First, a dust collector will be added to the Unit 3 Crusher Building based on vendor requirements to pick up additional dust from the conveyors running through the Unit 3 Crusher Building area. The additional baghouse (U4-L) is being added since the existing Unit 3 dust collector does not have sufficient capacity to pick up the additional dust from the new conveyors added for Unit 4. This change will provide TEP SGS with additional means to reduce dust and particulate matter.

Second, the location for several emission points will shift slightly based on a revised design layout. These changes are very minor and should not impact the air quality impact analysis performed with the previous significant permit revision application.

3.0 Regulatory Applicability Analysis

3.1 Federal and State Air Quality Requirements

Although a new emission point is being added to the facility through this minor permit revision, the applicable federal and state air quality requirements are already contained in the permit for the existing operations. Therefore, with the exception of revising the equipment list, the existing permit conditions will serve to regulate the new emission unit.

A copy of the proposed red-lined changes to the current air quality permit equipment list is provided in Appendix C of this permit application.

Per Arizona Department of Environmental Quality (ADEQ) guidance issued on June 1, 2007, TEP understands that while the addition of a new dust collector qualifies as a minor permit revision, this change will not occur until ADEQ issues a minor permit revision authorizing the change.

3.2 Exemptions and Insignificant Activities

TEP is not proposing any additional exemptions or insignificant activities with this permit application.

3.3 Compliance Status

TEP is currently in compliance with its air quality permit and will meet any additional applicable requirements that become effective during the permit term in a timely manner.

4.0 Emission Calculations

In order to calculate emissions from the proposed revisions, it is important to first identify the process rates, operating schedules, and limitations of the new equipment. Detailed emission calculations are provided in Appendix B of this permit application.

4.1 Process Rates

The raw material process rates for the Unit 3 and Unit 4 coal handling systems are provided in Table 4-1.

Table 4-1 Raw Material Usage Rates for the Unit 3 and Unit 4 Coal Handling Systems

Raw Material	Unit 3		Unit 4	
	Maximum Hourly Rate (tons per hour)	Maximum Annual Rate (tons per year)	Maximum Hourly Rate (tons per hour)	Maximum Annual Rate (tons per year)
Coal Unloading	3,000	4,180,909	3,000	4,180,909
Coal Handling	1,500	4,180,909	1,500	4,180,909

4.2 Operating Schedules and Limitations

SGS operates 24 hours a day, 7 days a week, 52 weeks a year. There are no limitations on the number of hours the station can operate. However, there are limitations on the number of hours that the emergency generators and fire pumps can operate. Generally, this equipment is limited to 500 hours per year.

4.3 Emission Change Summary

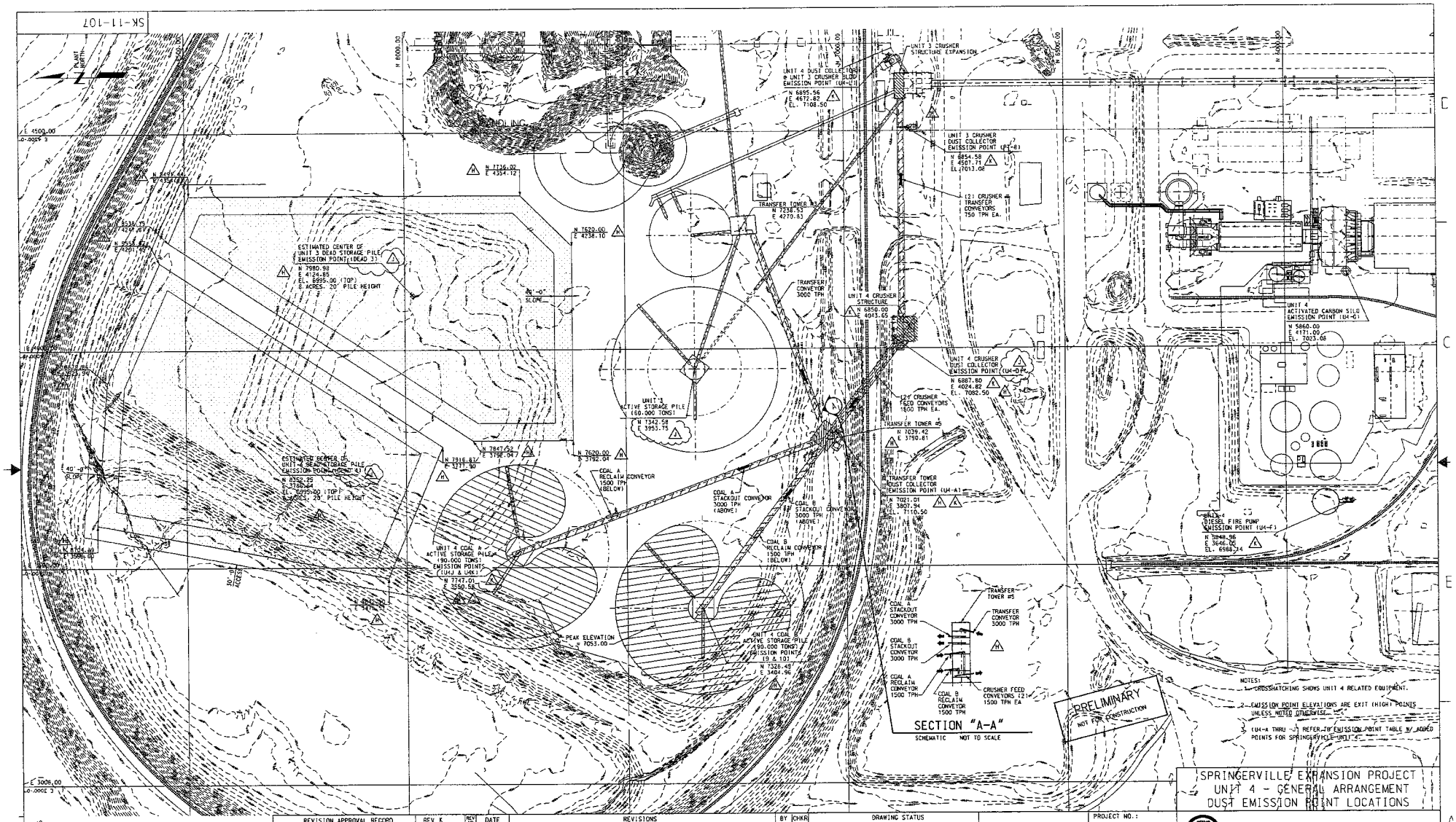
As shown in Table 4-2, the facility alterations will result in a slight increase in the potential to emit for the facility, but are well below the permitting significance thresholds. It is important to note that the air quality impact analysis was not revised with this minor permit revision as the emission reductions related to the changes with this revision ensure that the existing analysis adequately demonstrates protection of the National Ambient Air Quality Standards.

Table 4-2 Potential to Emit Summary for the Proposed Changes (tons/year)

Emission Generating Operation		Current Potential to Emit	Proposed Potential to Emit	Difference
Unit 3 and 4 Coal Handling Systems				
	PM_{10}	0.617	0.620	0.003
	PM	1.304	1.310	0.006
Total				
	PM_{10}	**0.617**	**0.620**	**0.003**
	PM	**1.304**	**1.310**	**0.006**

APPENDIX A

FIGURES



REVISION APPROVAL RECORD				REV K		
DISCIPLINE	BY	DATE	DISCIPLINE	BY	DATE	
ARCH.			MECHANICAL			
CIVIL			NUCLEAR			
ELECTRICAL			PIPING			
ENVIRON.			PROCESS			
GEN. ARRANG.			QA / QC			
HVAC			STRUCTURAL			
I & C						

REV NO.	DATE	REVISIONS	BY	CHKR
J	03/09/07	PRELIMINARY - NOT FOR CONSTRUCTION	LP	
K	03/13/08	REVISED TO REFLECT DESIGN LOCATIONS	JD	
C	09/25/06	PRELIMINARY - NOT FOR CONSTRUCTION	MAS	
D	10/04/06	PRELIMINARY - NOT FOR CONSTRUCTION	MAS	
E	10/16/06	PRELIMINARY - NOT FOR CONSTRUCTION	MAS	
F	10/24/06	PRELIMINARY - NOT FOR CONSTRUCTION	MAS	
G	02/06/07	PRELIMINARY - NOT FOR CONSTRUCTION	LP	
H	02/15/07	PRELIMINARY - NOT FOR CONSTRUCTION	LP	
I	02/23/07	PRELIMINARY - NOT FOR CONSTRUCTION	LP	

DRAWING STATUS				
ISSUED	REV	DATE	SDE	PEM
PRELIMINARY	K	3/14/08		
APPROVED FOR CONSTRUCTION				

NOT APPROVED FOR CONSTRUCTION UNLESS SIGNED & DATED. DESTROY ALL PRINTS BEARING EARLIER DATE &/OR REV. NO.

PROJECT NO.:	28773-002
DRAWN: MAS	DATE: 9/01/06
CHECKED:	DATE:
SCALE:	1" = 100'-0"

SPRINGERVILLE GENERATING STATION UNIT 4

Washington Group International

7800 E. Union Ave. - Denver, CO 80237 - (303) 843-2000

DWG. NO. SK-11-107 REV K

SPRINGERVILLE EXPANSION PROJECT
UNIT 4 - GENERAL ARRANGEMENT
DUST EMISSION POINT LOCATIONS

f:\cad\wap\dgn\sk-11-107.dgn
14-MAR-2008 07:42

202850-SK-11-107
SRP REV 0

INCHES
CENTIMETERS

APPENDIX B

EMISSION CALCULATIONS

Coal Handling System (Units 3 and 4) - Proposed Minor Permit Revision

Emission factor from AP-42, Section 13.2.4: *Aggregate Handling and Storage Piles* (1/95), Equation (1) - batch or continuous drop operation

E (lb PM_{10} per ton material handled) = k (0.0032) (U/5)^1.3 / [(M/2)^1.4]

where:

k = 0.35 [particles < 10um]

k = 0.74 [particles < 30um]

U = 9 [mph, avg wind speed from SGS used for exposed sources and to conservatively estimate internal ventilation for enclosed sources]

M = 15 [%, mean moisture content for Lee Ranch coal as received]

Although PRB coal may be used, Lee Ranch coal is a more conservative assumption.

E (lb PM_{10} per ton material handled) = 1.43E-04

E (lb PM per ton material handled) = 3.03E-04

Hours per Day (sources 1 - 5a) [1] = 24

Hours per Day (sources 5b - 19) [1] = 24

Maximum Throughput (tons/yr) = 4,180,909

Source ID	Source Name	Process Rate (ton/hour)	Uncontrolled Emissions [1] (lb PM_{10}/hr)	Uncontrolled PM_{10} Emissions [2] (tpy)	Control %	Controlled Emissions [1] (lb PM_{10}/hr)	Controlled PM_{10} Emissions [2] (tpy)	Controlled PM Emissions (lb PM/hr)	Controlled PM Emissions (tpy)	Control System
U4-L	Unit 4 Dust Collector @ Unit 3 Crusher Bldg	3000	0.43	0.30	99	0.004	0.003	0.009	0.006	Enclosures vented to fabric filters

Note:

(1) 24-hour PM_{10} emission rate based on maximum process rate and continuous operation (24 hours per day).

(2) Annual PM10 emission rates are based on maximum annual throughput.

sample calculations (source 2):

uncontrolled emissions (lb PM_{10} per hour): hourly process rate (3000 tons/hour) x emission factor (1.43E-04 lb/ton) = 0.43

uncontrolled emissions (tpy PM_{10}): annual throughput (4,180,909 tons/year) x emission factor (1.43E-04 lb/ton) x (1 ton/2000 lb) = 0.30

controlled emissions (lb PM_{10} per hour): uncontrolled emissions (0.43 lb/hr) x control efficiency [1-(control%/100)] = 0.43 x .01 = 0.004

controlled emissions (tpy PM_{10}): uncontrolled emissions (0.3 tpy) x control efficiency [1-(control%/100)] = 0.3 x .01 = 0.003

APPENDIX C

DRAFT REDLINE PERMIT EQUIPMENT LIST

Attachment C of Operating Permit #32008 shall be revised to read as follows:

ATTACHMENT "C": EQUIPMENT LIST
Air Quality Control Permit No. 32008
For
TUCSON ELECTRIC POWER COMPANY – Springerville Generating Station

Equipment	Description	Size	Serial Number	Model	DATE OF Commercial Operation/ Manufacture
Unit 1 Boiler	Tangentially fired, single drum, reheat, controlled circulation sub critical steam generating unit	380 MW, net	SGS-8-1-004	Combustion Engineering Inc.	1/30/78 (Commenced construction) 5/1/85 (Commercial operating)
Unit 2 Boiler	Tangentially fired, single drum, reheat, controlled circulation sub critical steam generating unit	380 MW, net	SGS-8-1-004	Combustion Engineering Inc.	1/30/78 (Commenced construction) 6/1/90 (Commercial operating)
Unit 3 Boiler	Steam generating unit wall fired, natural circulation, sub critical, single drum	400 MW, net, maximum continuous rating	To be determined (TBD)	Foster Wheeler	...
Unit 4 Boiler	Steam generating unit wall fired, natural circulation, sub critical, single drum	400 MW, net, maximum continuous rating	TBD.	TBD	...
Auxiliary Boiler	Oil fired with superheater for two unit cold start-up	113 MMBtu/hr	AS-5-2-001	Zurn Industries	01/30/78 (Commenced construction) 1984 (Commercial operating
Emergency diesel generator Units 1 and 2	Diesel generator with 650 gallon fuel oil tank	930 KW		Neil Detriot	5/1/85 (Commercial operating)
Unit 3 Emergency Diesel Fire Pump	Diesel-fired fire pump	375 HP	6TB22509	Caterpillar 3406	2004
Unit 4 Emergency Diesel Fire Pump	Diesel-fired fire pump	500 HP	TBD	TBD	TBD
Diesel Fire Pump for Emergency	4STG 15H-7000 F fire pump w/250 hp motor	2000 GPM @ 125 PSI		Fairbanks Morse	5/1/85 (Commercial operating)
Diesel Fire Pump	4STG 15H-7000 F fire pump w/250 hp motor	2000 GPM @ 125 PSI		Fairbanks Morse	5/1/85 (Commercial operating)
Cooling Tower 1	Steam unit cooling tower	Recirculation rate 176,000 gal/min	PGS-9-1		
Cooling Tower 2	Steam unit cooling tower	Recirculation rate 176,000 gal/min	PGS-9-1		

Equipment	Description	Size	Serial Number	Model	DATE OF Commercial Operation/ Manufacture
Cooling Tower 3	Steam unit cooling tower	Recirculation rate 200,000 gal/min	TBD	TBD	
Cooling Tower 4	Steam unit cooling tower	Recirculation rate 200,000 gal/min	TBD	TBD	
Coal Preparation Plant	Storage silos, unloading system, sampling system, crushers, conveyor, transfer points, transfer towers, and reclaim	8,200,000 tons/yr	Figure 1-1 Site Layout		
Lime Handling Units 1 & 2	Storage silos, lime unloading, lime feed bins	76,734 ton/yr	AS-6-1-001 AS-6-2-001 AS-6-3-001		
	One hopper and three completely enclosed belts	- 24" wide by 256'7 1/16" long -30" wide by 121'10 9/16" long -24" wide by 31'4 1/16" long	--	Sveldala Eastern Made	
Lime Handling Units 3 &4	Storage silos, lime unloading, lime feed bins	62,400 ton/yr	--	--	--
Ash Handling Units 1 & 2	--	--	--	--	--
Ash Handling Units 3 & 4	Storage silos, ash truck loading	836,182 ton/yr	--	--	--
DCL CFM Dust Filter Modlue	Pulse-jet cleaned, cartridge type in-line dust collector	Filtering Area: 329 sf.		CFM 330 DCL: distributed by Process & Power/Texas, Inc.	May, 2002 (Anticipated)
Nonpoint sources	--	--	--	--	--
Sand Blasting	--	--	--	--	--
Spray Painting	--	--	--	--	--
Mobile Sources	--	--	--	--	--
Demolition and Renovation	--	--	--	--	--
Air Conditioner Maintenance	--	--	--	--	--
Silo	Activated Carbon Silo with Vent Filter	1,000 cfm	TBD	TBD	TBD

Continuous Emission Monitors

Steam Unit	NOx Monitor	SO_2 Monitor	Diluent Monitor	Opacity Monitor	Flow Monitor
Unit 1	NOx- Installed/Certified PLC- Installed/Certified DAHS- Installed/Certified	SO_2- Installed/Certified PLC- Installed/Certified DAHS- Installed/Certified	CO_2 – Installed/Certified PLC- Installed/Certified DAHS- Installed/Certified	Opacity - Installed/Certified PLC- Installed/Certified DAHS- Installed/Certified	Flow – Installed/Certified PLC – Installed/Certified DAHS- Installed/Certified
Unit 2	NOx- Installed/Certified PLC- Installed/Certified DAHS- Installed/Certified	SO_2- Installed/Certified PLC- Installed/Certified DAHS- Installed/Certified	CO_2 – Installed/Certified PLC- Installed/Certified DAHS- Installed/Certified	Opacity - Installed/Certified PLC- Installed/Certified DAHS- Installed/Certified	Flow – Installed/Certified PLC – Installed/Certified DAHS- Installed/Certified
Unit 3	TBD	TBD	TBD	TBD	TBD
Unit 4	TBD	TBD	TBD	TBD	TBD

Air Pollution Control Equipment

Equipment	Description	Size	Serial Number	Model	DATE OF Commercial Operation/ Manufacture
Sulfur Dioxide Removal System (for Unit 1)	Dry flue gas desulfurization for Steam Unit 1	150 GPM each rotary atomizer (3), 11,500 RPM, 800 HP drive motor with a 2 HP oil pump motor per unit		Joy/Niro is now owned by B&W	1/30/78 (Commenced construction)
Sulfur Dioxide Removal System (for Unit 1)	Dry flue gas desulfurization for Steam Unit 1	TBD	TBD	TBD	TBD
Sulfur Dioxide Removal System (for Unit 2)	Dry flue gas desulfurization for Steam Unit 2	150 GPM each rotary atomizer (3), 11,500 RPM, 800 HP drive motor with a 2 HP oil pump motor per unit		Joy/Niro is now owned by B&W	1/30/78 (Commenced construction)
Sulfur Dioxide Removal System (for Unit 2)	Dry flue gas desulfurization for Steam Unit 2	TBD	TBD	TBD	TBD
Sulfur Dioxide Removal System for Unit 3	Dry flue gas desulfurization fpr Steam Unit 3	TBD	TBD	TBD	TBD

Equipment	Description	Size	Serial Number	Model	DATE OF Commercial Operation/ Manufacture
Sulfur Dioxide Removal System for Unit 4	Dry flue gas desulfurization	TBD	TBD	TBD	TBD
Particulate Matter Removal System on Unit 1	Baghouses	1,320,000 acfm at 160 °F (2)		Joy	1/30/78 (Commenced construction)
Particulate Matter Removal System on Unit 2	Baghouses	1,320,000 acfm at 160° F (2)		Joy	1/30/78 (Commenced construction)
Particulate Matter Removal System on Unit 3	Fabric filter baghouse	TBD	TBD	Alstom	TBD
Particulate Matter Removal System on Unit 4	Fabric filter baghouse	TBD	TBD	TBD	TBD
Coal Handling System	Unloading Transfer Tower Collector	12,000 cfm at 70°F	09285A	Johnson-March Model #PCT 12-10	01/30/78 (Commenced construction)
	Secondary Crusher Enclosure Dust Collector (DC-2)	27,950 cfm at 70°F	002858	Johnson-March Model #PCT 13-17	
	Sampler Enclosure Dust Collector	9,400 cfm at 70° F	09285C	Johnson-March Model #PCT 10-10	
	Silos Feed Tower Collector (DC-4)	27,950 cfm at 70°F	09285D	Johnson-March Model #PCT 10-13-17	
	Silo Feed Tower Collector (DC-4A)	27,950 cfm at 70°F	09285B	Johnson-March Model #PCT 10-13-17	
	Unit 1 & 2 – Dust Processing Center Dust Collector	2,325 cfm		Airtrol, Inc. 68BRST72	TBD
	Unit 3 - Transfer Tower # 1& 2 Dust Collector	24,000 cfm	9-FC-MK-001	Airtrol, Inc. 276RRWT144	2004
	Unit 3 - Transfer Tower # 3 Dust Collector	18,750 cfm	9-FC-MK-006	Airtrol, Inc. 232RRWT144	2004
	Unit 3 - Transfer Tower # 4 / Silo Dust Collector	35,350 cfm	9-FC-MK-016	Airtrol, Inc. 428RRWT144	2004
	Unit 3 - Crusher Tower Dust Collector	34,975 cfm	9-FC-MK-012	Airtrol, Inc. 428RRWT144	2004
	Unit 3 – Silo Tripper Bay Dust Collector	35,350 cfm	9-FC-MK-016	Airtrol, Inc. 428RRWT144	2004

Equipment	Description	Size	Serial Number	Model	DATE OF Commercial Operation/ Manufacture
	Unit 3 – Transfer Tower #5 Dust Collector	TBD	TBD	TBD	TBD
	Unit 3 – Transfer Tower #6 Dust Collector	TBD	TBD	TBD	TBD
	Unit 3 – Transfer Tower #7 Dust Collector	TBD	TBD	TBD	TBD
	Unit 4 – Stackout Dust Collector	TBD	TBD	TBD	TBD
	Unit 4 – Dust Collector @ Unit 3 Crusher Building	TBD	TBD	TBD	TBD
	Unit 4 – Crusher Dust Collector	TBD	TBD	TBD	TBD
	Unit 4 – Silo Tripper Dust Collector	TBD	TBD	TBD	TBD
Lime Handling System – Units 1 & 2	Lime Silos Collector	--	345-78-4-3005-00	Fuller Co.	01/30/78 (Commenced construction
	Baghouses at Water Treatment Silos (4)	--	3710(1) 3710(2) 3710(3) 3710(4)	EVO Corp. Model #84WBO48C	
	Filter Baghouse	15,000 ACFM	--	--	1999
Lime Handling System – Units 3 &4	Lime Silos Collector	--	TBD	TBD	TBD
	Baghouses at Water Treatment Silos (4)	--	TBD	TBD	TBD
Drift Eliminator on Cooling Tower Unit 3	High-efficiency drift eliminator	TBD	TBD	TBD	TBD
Drift Eliminator on Cooling Tower Unit 4	High efficiency drift eliminator	TBD	TBD	TBD	TBD
Ash Handling System Units 3 & 4	Units 3 &4 Fly Ash Silo Dust Collectors A&B	TBD	TBD	TBD	